Exercise 18

For the following exercises, use the descriptions of each pair of lines given below to find the slopes of Line 1 and Line 2. Is each pair of lines parallel, perpendicular, or neither?

- Line 1: Passes through $(0, 6)$ and $(3, -24)$
- Line 2: Passes through $(-1, 19)$ and $(8, -71)$

Solution

Use the slope formula for each line.

$$\text{Line 1}: \quad m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-24 - 6}{3 - 0} = \frac{-30}{3} = -10$$

$$\text{Line 2}: \quad m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-71 - 19}{8 - (-1)} = \frac{-90}{9} = -10$$

Because the lines have the same slope, they are parallel.